

**CLAIMS**

What is claimed is:

1. An automatic vehicle theft prevention system for selectively enabling an ignition system of a vehicle, said ignition system being operable using an ignition key, and said system comprising:

an interrogator circuit including a signal generator for generating an excitation signal and an antenna coupled to said signal generator for radiating said excitation signal and receiving a return signal;

a transponder circuit separate from said ignition key for detecting said excitation signal and radiating said return signal, said transponder circuit modulating said excitation signal to produce said return signal containing an identification code for said transponder circuit;

a controller in communication with said antenna for detecting said identification code in said return signal; and

a relay actuated to an enable mode by said controller when said controller detects said identification code, said relay being actuated to enable said ignition system.

2. A system as claimed in claim 1 wherein said transponder circuit is a mobile radio frequency identification (RFID) data carrier including a memory element for storing said identification code.

3. A system as claimed in claim 1 wherein said excitation signal provides power to said transponder circuit.

4. A system as claimed in claim 1 wherein said controller comprises:

an input for receiving a predetermined authorized identification code; and

a memory element in communication with said input for storing said predetermined authorized identification code, said controller actuating said relay to said enable mode in response to a match between said detected identification code and said predetermined authorized.

5. A system as claimed in claim 4 wherein said input is a data port configured for interconnection with an external programming device, said external programming device providing said predetermined authorized access code.

6. A system as claimed in claim 4 wherein said input is said antenna configured for radio frequency communication with an external programming device, said external programming device providing said predetermined authorized access code.

7. A system as claimed in claim 4 wherein:  
said identification code is a first identification code;  
said predetermined authorized identification code is a first predetermined authorized identification code;

said input of said controller is configured to receive a second predetermined authorized identification code;

said memory element is configured to store said second predetermined authorized identification code; and

said system further comprises a second RFID data carrier separate from said ignition key for detecting said excitation signal and radiating said return signal, said second RFID data carrier including a memory element for storing a second

identification code for said second RFID data carrier, and said second RFID data carrier modulating said excitation signal to produce said return signal containing said second identification code, wherein when said controller detects a match between said detected second identification code and said second predetermined authorized identification code, said relay is actuated to said enable mode to enable said ignition system.

8. A system as claimed in claim 1 wherein said relay is actuated to a disable mode whenever said controller fails to detect said identification code.

9. A system as claimed in claim 1 wherein said ignition system includes an ignition switch and a starter mechanism, and said system further comprises:

an input configured to be coupled to an output of said ignition switch, and said input being in communication with an input of said relay; and

an output in communication with an enable mode output of said relay and configured to be coupled to an input of said starter mechanism.

10. A system as claimed in claim 1 wherein said ignition system includes an ignition switch activated by said ignition key, and said system further includes a latching relay actuated in response to a momentary actuation of said relay when said controller detects said identification code, said latching relay being adapted to remain latched until said ignition switch is deactivated.

11. A system as claimed in claim 10 further comprising an override switch in communication with an input of said latching relay wherein activation of said override switch causes said latching relay to be latched to continuously enable said ignition system.

12. A system as claimed in claim 11 wherein activation of said override switch causes said latching relay to remain latched to continuously enable said ignition system only following actuation of said latching relay by said relay.

13. A system as claimed in claim 11 further comprising an indicator in communication with an output of said override switch and energized when said override switch is activated.

14. A system as claimed in claim 1 wherein said antenna is configured for placement inside a passenger compartment of said vehicle.

15. An automatic vehicle theft prevention system for selectively enabling an ignition system of a vehicle, said ignition system being operable using an ignition key, and said system comprising:

an interrogator circuit including a signal generator for generating an excitation signal and an antenna coupled to said signal generator for radiating said excitation signal and receiving a return signal;

a mobile radio frequency identification (RFID) data carrier separate from said ignition key for detecting said excitation signal and radiating said return signal, said RFID data carrier including a memory element for storing an identification code for said RFID data carrier, and said RFID data carrier modulating said excitation signal to produce said return signal containing said identification code;

a controller in communication with said antenna for detecting said identification code in said return signal, said controller including:

an input for receiving a predetermined authorized identification code; and

a memory element in communication with said input for storing said predetermined authorized identification code; and

a relay actuated to an enable mode by said controller when said controller detects a match between said detected identification code and said predetermined authorized identification code, said relay being actuated to said enable mode to enable said ignition system.

16. A system as claimed in claim 15 wherein said input is one of a data port and said antenna, said data port being configured for interconnection with an external programming device, and said antenna being configured for radio frequency communication with said external programming device, said external programming device providing said predetermined authorized access code.

17. A system as claimed in claim 15 wherein:  
said identification code is a first identification code;  
said predetermined authorized identification code is a first predetermined authorized identification code;

said input of said controller is configured to receive a second predetermined authorized identification code;

said memory element is configured to store said second predetermined authorized identification code; and

said system further comprises a second RFID data carrier separate from said ignition key for detecting said excitation signal and radiating said return signal, said second RFID data carrier including a memory element for storing a second identification code for said second RFID data carrier, and said second RFID data carrier modulating said excitation signal to produce said return signal containing said second identification code, wherein when said controller detects a match between said detected second identification code and said second predetermined authorized identification code, said relay is actuated to said enable mode to enable said ignition system.

18. An automatic vehicle theft prevention system for selectively enabling an ignition system of a vehicle, said ignition system being operable using an ignition key, and said system comprising:

an interrogator circuit including a signal generator for generating an excitation signal and an antenna coupled to said signal generator for radiating said excitation signal and receiving a return signal;

a mobile radio frequency identification (RFID) data carrier separate from said ignition key for detecting said excitation signal and radiating said return signal, said mobile RFID data carrier including a memory element for storing an identification code for said mobile RFID data carrier, said mobile RFID data carrier modulating said excitation signal to produce said return signal containing said identification code;

a controller in communication with said antenna for detecting said identification code in said return signal; and

a relay actuated by said controller to one of an enable mode and a disable mode, said relay being actuated to said enable mode to enable said ignition system in response to detection of said identification code, and said relay being actuated to said disable mode to disable said ignition system whenever said controller fails to detect said identification code.

19. A system as claimed in claim 18 wherein said antenna is configured for placement inside a passenger compartment of said vehicle.

20. A system as claimed in claim 19 further comprising:

a latching relay actuated in response to a momentary actuation of said relay when said controller detects said identification code, said latching relay being adapted to remain latched until said ignition switch is deactivated;

an override switch in communication with an input of said latching relay wherein activation of said override switch causes said latching relay to remain latched to continuously enable said ignition system only following actuation of said latching relay by said relay; and

an indicator in communication an output of said override switch and energized when said override switch is activated.

Patented by the United States Patent Office